Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1. (*Currently Amended*) A ~~self-locking~~ locking linear adjustment mechanism comprising:

a locking tumbler having an axis and two ends each having a recess defined therein;

an adjustment vernier having a center, an internal spline, and two threaded ends of different pitch, said adjustment vernier being interconnected with the locking tumbler, and being configured to effect a vernier linear adjustment;

two end adapters each having an inner threaded end and an outer end, each inner end being interconnected to the adjustment vernier, and each outer end being configured to be joined to any device requiring linear adjustment;

two roll pins configured to secure the locking tumbler axially in place;

two locking skirts each having an inner end with an internal shoulder and an outer end with a raised spherical shoulder;

two precision balls;

two springs each having two ends, each spring being configured to bias apart the inner end of one of the two locking skirts and the inner end of one of the two end adapters;

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two locking splines configured to lock rotation of the adjustment vernier when engaged with the internal spline of the adjustment vernier;

two index pins; and

two guide shafts,

wherein the locking tumbler is configured to fit between the locking skirts and to rotate about the axis of the locking tumbler, thereby causing the two precision balls to move outward and inward from the center of the adjustment vernier, and the recesses of the tumbler are each configured to enable insertion of an operation tool; the two precision balls are configured to be driven outward and inward by the locking tumbler against a spring force to lift and drop the locking splines in and out of engagement with the internal spline of the adjustment vernier; the two end adapters are configured to fit around the adjustment vernier with the interconnected locking tumbler; each locking skirt is configured to fit around one locking spline, index pin, guide shaft, and spring, with the precision balls positioned on either side of the locking tumbler forming an assembly, and wherein the ~~self-locking~~ locking linear adjustment mechanism has a dual function ~~self-locking~~ locking feature with the use of a single tool.

Claim 2. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 1, wherein the locking tumbler is a longitudinally extending member that extends for a predetermined distance ~~and has two opposing ends, each end having a recess defined therein~~.

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Claim 3. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 2, wherein the locking tumbler further comprises two opposing pockets configured to enable placement and retention of the two precision balls.

Claim 4. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 3, wherein the balls are positioned not to be in contact with faces of the locking splines when the ~~self-locking~~ locking linear adjustment mechanism is in a locked position.

Claim 5. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 3, wherein the balls are guided by a diameter of the internal spline of the adjustment vernier.

Claim 6. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 1, wherein the locking tumbler is secured in place axially by two standard roll pins that tangentially engage grooves in the locking tumbler.

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Claim 7. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 1, wherein the adjustment vernier includes a central member with two tubular members extending longitudinally away from the central member in opposing directions.

Claim 8. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim [[1]] 7, wherein each tubular member includes proximal and distal ends relative to the central member of the adjustment vernier, and a plurality of slits equally spaced about an associated tubular member.

Claim 9. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 8, wherein each tubular member is externally threaded in a predetermined manner for a predetermined distance from the distal end to the proximal end of an associated tubular member.

Claim 10. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 9, wherein each tubular member has a predetermined inner circumference at the proximal end that is less than a predetermined inner circumference at the distal end of the tubular member.

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Claim 11. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim [[1]] 7, wherein each end adapter longitudinally extends for a predetermined distance, has inner and outer ends, the inner end of the end adapter being configured for engaging the distal end of a corresponding tubular member of the adjustment vernier, and the outer end of the end adapter being configured for engaging another element.

Claim 12. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 1, wherein between the inner end and the outer end of each end adapter a passage inhibitor is provided that includes a hole defined therein configured for allowing a correspondingly configured guide shafts to pass therethrough.

Claim 13. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 1, ~~further comprising~~ wherein the roll pins are configured ~~for securing~~ to secure the locking tumbler axially in place by tangentially engaging grooves in the locking tumbler [[.]] and corresponding holes in the adjustment vernier.

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Claim 14. (*Canceled*)

Claim 15. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim [[14]] 7, wherein the locking skirts each extend for a predetermined length ~~and have an inner end and an outer end~~, the inner end of each locking skirt being configured for being placed proximate the central member of the adjustment vernier, and the outer end of each locking skirt being configured ~~with a raised spherical shoulder for engaging the~~ to engage a distal end ramp of the corresponding tubular member of the adjustment vernier.

Claim 16. (*Currently Amended*) The ~~self-locking~~ locking linear adjustment mechanism according to claim 1, wherein each locking spline extends for a predetermined length and has an inner end and an outer end, the inner end of each locking spline having a plurality of external splines configured for engaging with internal splines at ~~the~~ proximal ~~end~~ ends of the ~~tubular elements~~ ends of the adjustment vernier.

Claim 17. (*New*) The locking linear adjustment mechanism according to claim 1, wherein when the locking linear adjustment mechanism is in a locked position, the springs force engagement of the internal spline of the adjustment vernier and external splines of the locking splines, a load of the springs simultaneously drives the locking

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skirts into a conical lead in distal end ramps of the tubular members of the adjustment vernier, thereby expanding slotted ends of the adjustment vernier to force a tight engagement of the external threads of the adjustment vernier with the internal threads of the adapter ends thereby eliminating all axial free play in both directions that may exist due to manufacturing tolerances within the threaded engagement, and when the locking linear adjustment mechanism is in an unlocked position, the precision balls are driven outward pushing the locking splines, disengaging mated splined locks, and relieving radial pressure on lead in distal end ramps of the threaded ends of the adjustment vernier in one motion while compressing the two springs, thereby freeing the adjustment vernier to enable rotation of the adjustment vernier with low friction to achieve a desired length change in a given application.

Claim 18. (*New*) A locking linear adjustment mechanism comprising:

a locking tumbler having an axis and two ends each having a recess defined therein;

an adjustment vernier having a center, an internal spline, and two threaded ends of different pitch, said adjustment vernier being interconnected with the locking tumbler, and being configured to effect a vernier linear adjustment;

two end adapters each having an inner threaded end and an outer end, each inner end being interconnected to the adjustment vernier, and each outer end being configured to be joined to any device requiring linear adjustment;

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two roll pins configured to secure the locking tumbler axially in place;

two locking skirts each having an inner end with an internal shoulder and an outer end with a raised spherical shoulder;

two precision balls;

two springs each having two ends, each spring being configured to bias apart the inner end of one of the two locking skirts and the inner end of one of the two end adapters;

two locking splines configured to lock rotation of the adjustment vernier when engaged with the internal spline of the adjustment vernier;

two index pins; and

two guide shafts,

wherein the locking tumbler is configured to fit between the locking skirts and to rotate about the axis of the locking tumbler, thereby causing the two precision balls to move outward and inward from the center of the adjustment vernier; the ends of the adjustment vernier each include proximal and distal ends relative to a central member of the adjustment vernier, and a plurality of slits equally spaced about the associated end, each end being externally threaded in a predetermined manner for a predetermined distance from the distal end to the proximal end of an associated end; and the recesses of the tumbler are each configured to enable insertion of an operation tool; the two precision balls are configured to be driven outward and inward by the locking tumbler against a spring force to lift and drop the locking splines in and out of engagement with the internal

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spline of the adjustment vernier; the two end adapters are configured to fit around the adjustment vernier with the interconnected locking tumbler; each locking skirt is configured to fit around one locking spline, index pin, guide shaft, and spring, with the precision balls positioned on either side of the locking tumbler forming an assembly, and wherein the locking linear adjustment mechanism has a dual function locking feature with the use of a single tool.

Claim 19. (*New*) The locking linear adjustment mechanism according to claim 18, wherein when the locking linear adjustment mechanism is in a locked position, the springs force engagement of the internal spline of the adjustment vernier and external splines of the locking splines, a load of the springs simultaneously drives the locking skirts into a conical lead in distal end ramps of the tubular members of the adjustment vernier, thereby expanding slotted ends of the adjustment vernier to force a tight engagement of the external threads of the adjustment vernier with the internal threads of the adapter ends thereby eliminating all axial free play in both directions that may exist due to manufacturing tolerances within the threaded engagement, and when the locking linear adjustment mechanism is in an unlocked position, the precision balls are driven outward pushing the locking splines, disengaging mated splined locks, and relieving radial pressure on lead in distal end ramps of the threaded ends of the adjustment vernier in one motion while compressing the two springs, thereby freeing the adjustment vernier

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to enable rotation of the adjustment vernier with low friction to achieve a desired length change in a given application.

Claim 20. (*New*) A locking linear adjustment mechanism comprising:

a locking tumbler having an axis and two ends each having a recess defined therein;

an adjustment vernier having a center, an internal spline, and two threaded ends of different pitch, said adjustment vernier being interconnected with the locking tumbler, and being configured to effect a vernier linear adjustment;

two end adapters each having an inner threaded end and an outer end, each inner end being interconnected to the adjustment vernier, and each outer end being configured to be joined to any device requiring linear adjustment;

two roll pins configured to secure the locking tumbler axially in place;

two locking skirts each having an inner end with an internal shoulder and an outer end with a raised spherical shoulder;

two precision balls;

two springs each having two ends, each spring being configured to bias apart the inner end of one of the two locking skirts and the inner end of one of the two end adapters;

two locking splines configured to lock rotation of the adjustment vernier when engaged with the internal spline of the adjustment vernier;

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two index pins; and

two guide shafts,

wherein the locking tumbler is configured to fit between the locking skirts and to rotate about the axis of the locking tumbler, thereby causing the two precision balls to move outward and inward from the center of the adjustment vernier, and the recesses of the tumbler are each configured to enable insertion of an operation tool; the two precision balls are configured to be driven outward and inward by the locking tumbler against a spring force to lift and drop the locking splines in and out of engagement with the internal spline of the adjustment vernier; the two end adapters are configured to fit around the adjustment vernier with the interconnected locking tumbler; the roll pins are configured to secure the locking tumbler axially in place by tangentially engaging grooves in the locking tumbler and corresponding holes in the adjustment vernier; each locking skirt is configured to fit around one locking spline, index pin, guide shaft, and spring, with the precision balls positioned on either side of the locking tumbler forming an assembly, and wherein the locking linear adjustment mechanism has a dual function locking feature with the use of a single tool.

Claim 21. (*New*) The locking linear adjustment mechanism according to claim 20, wherein when the locking linear adjustment mechanism is in a locked position, the springs force engagement of the internal spline of the adjustment vernier and external splines of the locking splines, a load of the springs simultaneously drives the locking

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skirts into a conical lead in distal end ramps of the tubular members of the adjustment vernier, thereby expanding slotted ends of the adjustment vernier to force a tight engagement of the external threads of the adjustment vernier with the internal threads of the adapter ends thereby eliminating all axial free play in both directions that may exist due to manufacturing tolerances within the threaded engagement, and when the locking linear adjustment mechanism is in an unlocked position, the precision balls are driven outward pushing the locking splines, disengaging mated splined locks, and relieving radial pressure on lead in distal end ramps of the threaded ends of the adjustment vernier in one motion while compressing the two springs, thereby freeing the adjustment vernier to enable rotation of the adjustment vernier with low friction to achieve a desired length change in a given application.

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